

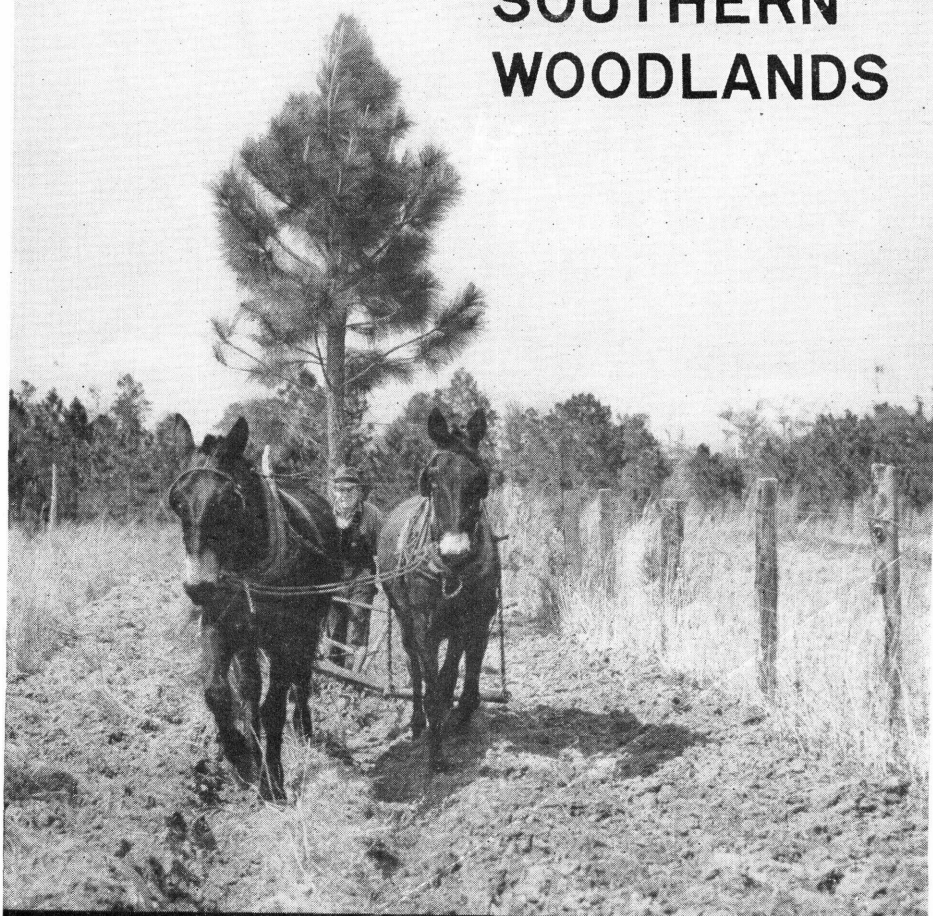
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PREVENTING DESTRUCTIVE FIRES

IN
SOUTHERN
WOODLANDS



FARMERS' BULLETIN NO. 1926
U.S. DEPARTMENT OF AGRICULTURE

PROTECT THE WOODS FOR VICTORY

FARMERS AND RURAL YOUTH can perform a patriotic service to America and a useful service to themselves by protecting woodlands from fire. Timber products of all kinds are needed to win the war. It aids and comforts our enemies when these products are damaged and when future timber crops are destroyed by woods fires. Help to protect the woodlands in your community.

Washington, D. C.

Issued February, 1943

F 419846

COVER PHOTO.—PLOWING AN 8-FOOT FIREBREAK. SUCH A FIREBREAK HELPS TO PROTECT THE WOODS AND IS CONSTRUCTED CHEAPLY WITH ORDINARY FARM IMPLEMENTS.

PREVENTING DESTRUCTIVE FIRES IN SOUTHERN WOODLANDS

Prepared by The Forest Service and The Extension Service

CONTENTS

	Page		Page
War emphasizes need for woodland protection ..	1	Woodland fire hazards can be reduced	10
Why do people burn the woods?	4	General recommendations	11
Carelessness and indifference	5	Pointers in fighting fires	12
Burning for grazing causes many destructive fires	7	The State forest fire organization	14
Do woods fires kill snakes and insects?	8		
Will burning kill the boll weevil?	9		

WAR EMPHASIZES NEED FOR WOODLAND PROTECTION

FORESTS and their many products are needed to help win the war.

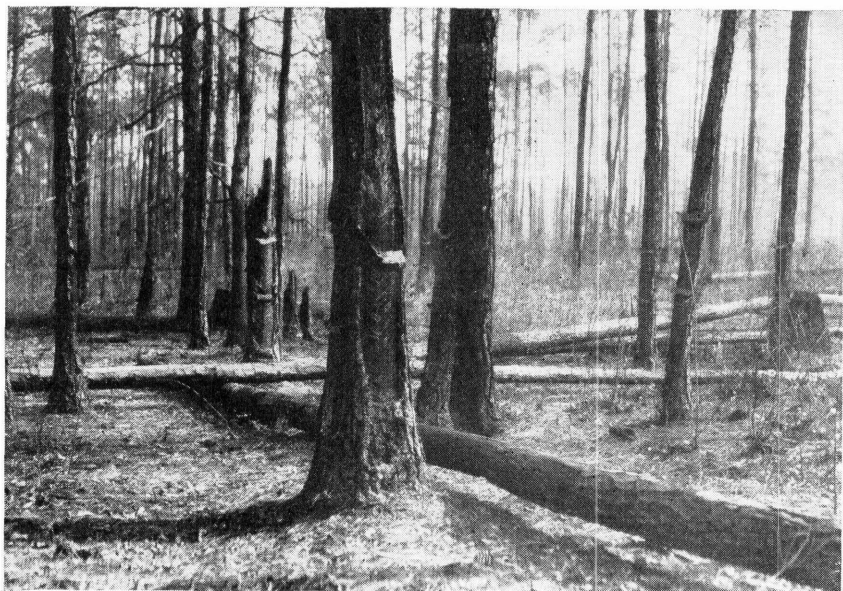
The Army and the Navy require more wood than ever before. Wood is being used as a substitute for many scarce metals as well as in building and equipping barracks, airplanes, and patrol boats, and the like. Since farm woodlands contain one-third of the Nation's forest-producing area, farmers have a wartime responsibility in protecting them from destructive forest fires, which threaten to reduce and impair the needed supply of materials. Thus, besides growing Food for Freedom, farmers can aid in winning the war: First, by preventing fires from starting in the woods, and second, by giving prompt help in fighting them.

Moreover, forest fires can cause damage to defense facilities and war industries located within forested areas—military camps, ordnance plants, air bases, maneuver grounds, aircraft-spotting stations, lumberyards, and gas and oil fields. Smoke from a widespread series of fires can blind airplane spotters, thus hiding the approach of enemy aircraft and possibly interfering with the operations of our own defense forces. Anyone who carelessly or intentionally burns the woods and causes destruction during wartime therefore weakens the Nation's war efforts as definitely as an enemy saboteur.

In addition to wartime reasons why every care should be taken to keep southern woods from burning, protecting the woods from uncontrolled fires affects the pocketbook of the farm woodland owner because:

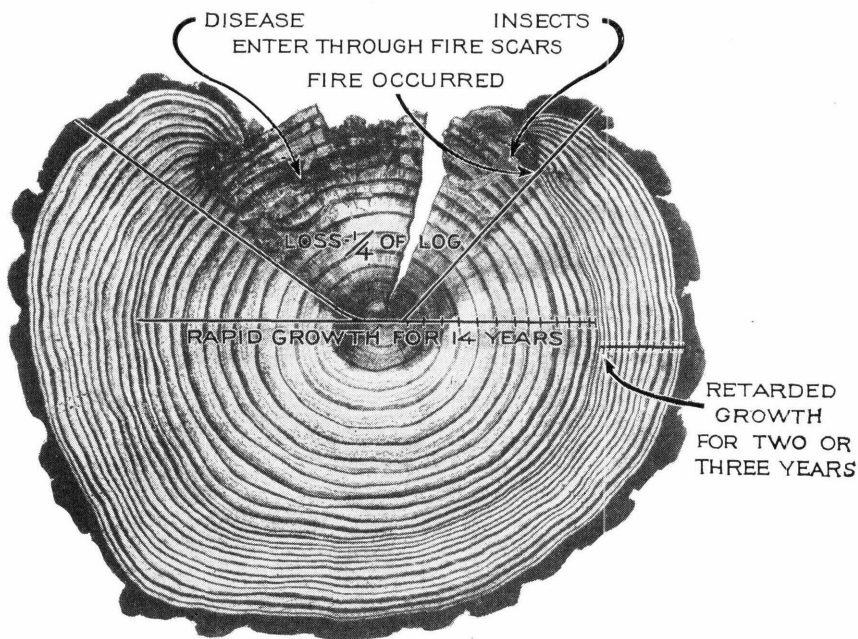
1. Burning kills nature's crop of seedlings and young trees needed to establish another forest.

2. Severe fires kill some of the larger trees, weaken and slow down the growth of others, and cause tree injuries by burning the bark and scorching the tops (fig. 1).



F 271733

FIGURE 1.—Fire wrecks the forest. A severe fall fire killed and injured many trees, burning off some at the ground.



F 313189

FIGURE 2.—Fire damages the tree. One fire caused the loss of one-fourth of the timber in this butt log and reduced the growth of the tree in the years immediately after the fire.

3. Fire damage encourages bark beetles and rot-producing diseases (fig. 2).
4. Fire injuries may lower the sale value of trees one-half to two-thirds (fig. 3). Fires often seriously damage turpentine orchards.
5. Fires frequently destroy valuable woods products already cut,



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FIGURE 3.—Fire damages logs. These sections cut from the butt logs of turpentine trees were rejected by the sawmill. They were a loss to the owner except for use as firewood.

such as fuel wood, logs, and lumber. Fire-scarred pulpwood is rejected by the buyers because such burned wood cannot be bleached successfully.

6. Woods fires often destroy farm buildings and fences.



WHY DO PEOPLE BURN THE WOODS?

The question is often asked: "Why do people burn the woods?"

Many answers are given, differing according to location, custom, and knowledge of timber growing. A recent survey¹ among Georgia farmers showed that the most common causes of woods fires (27 percent) were carelessness, indifference, and lack of appreciation of forest values destroyed. Fires from these causes included those which escaped while fields, terraces, and hedgerows were being burned and those caused by smokers, sawmills, and railroads.

One out of five fires was set because of grazing, and nearly as many



F 267427

FIGURE 4.—Woods fires have severely damaged this pine forest, killed many trees, and seriously weakened others, thus offering opportunity for bark beetles to complete the job of destruction.

more from attempts to kill snakes and insects. About 13 percent of the woods burners hoped to destroy boll weevils, and 7 percent were attempting to remove fire hazards, such as grass and brush when the fire they had set escaped them. A small number set fires for spite and revenge or to open up the woods or to improve game habitats. Some fires were attributed to hunting and fishing, including burning to run out rabbits. Desire for excitement and thrill was given as the reason for setting some fires. Turpentine workers were mentioned as being responsible for about 1 fire out of 100.

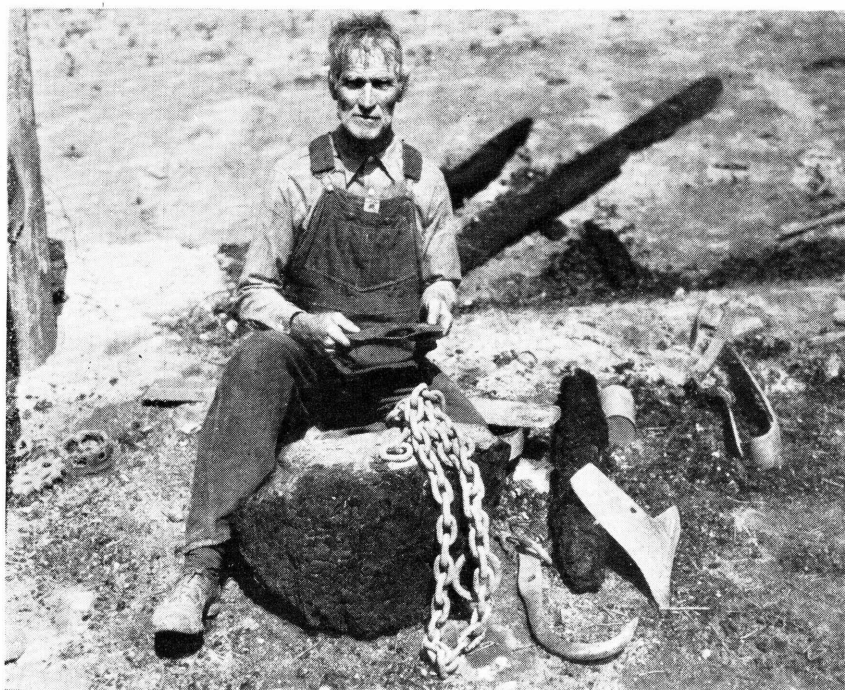
Community discussions by farm adult and youth groups will help

¹ Survey conducted by the Georgia Agricultural Extension Service.

to determine the causes of fires and how best to prevent destruction of the woods (fig. 4). Carelessness with fire in the woods can be changed to respect for the forest as an appreciation of the value of trees for timber and protective cover becomes more commonly established. This value has been demonstrated by many southern farmers who are now protecting their trees and are growing full stands of timber as a cash crop.

CARELESSNESS AND INDIFFERENCE

According to the survey, the farmers who mentioned carelessness and indifference as the main reasons for forest fires said that for the most part these fires are not intentional.



F 41986*

FIGURE 5.—Homeless and without tools and farm implements to continue earning his livelihood, this southern farmer faces a dark future as the direct result of a neighbor's carelessness in letting fire escape in the woods.

The reckless destruction of property that may result when a person starts a fire through indifference and ignorance is illustrated by the experience of a Florida woodland owner who appreciated the value of timber and had spent a considerable sum of money for protection, including the plowing of firebreaks. He was successful in excluding fire until one day three men selling fish in the neighborhood came along in a truck. A patch of dry broomsedge attracted their attention, and one of them got out of the truck and touched a match to it, probably to see what would happen. As the wind was strong and everything was dry, the blaze got off to a furious start, and little could

be done to stop it even though friendly neighbors helped. Hogs were killed, fences burned up, tree reproduction destroyed, and large timber seriously damaged, all as the result of that conflagration.

Another example is that of a farmer of 70 years and his wife whose home was completely destroyed in a fire started by a careless person in a nearby woods.

Destruction of the woods and farm improvements by carelessness or indifference has caused heavy losses and ruin which has affected farmers, industry, and the entire welfare of forest communities. The question of how to stop or reduce this kind of burning is difficult to answer. The best remedy seems to be for each person to interest



F 419663

FIGURE 6.—Five persons were left homeless because of a careless neighbor who was burning brush a mile and a half away. A four-room house and all sheds and adjoining buildings were destroyed in the fire that swept in from the nearby woods.

himself in the fire problem and then to help establish a community interest in preventing uncontrolled woods burning. Everyone must become more aware of the danger to friends and neighbors (fig. 5) and to the Nation when clean-up fires escape, when lighted matches or cigarettes are thrown away, when campfires are left untended, or when fire is used carelessly in any other way.

Because the interests of all are at stake, fire protection becomes a community and county problem (fig. 6). If negligent individuals persist in handling fires in ways dangerous to the community, they subject themselves to prosecution under the fire laws; the interests of neighboring landowners and the public must be protected.

Educational efforts also offer a means of reaching such rural people, and particularly the youth, who have a desire to improve conditions (fig. 7). When the majority of the citizens become better acquainted with the dangers of uncontrolled fires, forest and woods fires will become less frequent. A changed attitude should bring about more thrifty timber stands, better farm incomes, and stabilized wood-using industries and communities.

BURNING FOR GRAZING CAUSES MANY DESTRUCTIVE FIRES

Burning the woods for grazing is thought by farmers to be responsible for more fires than any other single cause except carelessness.



F 419865

FIGURE 7.—Outdoor-study classes supervised by their teacher provide a means whereby boys and girls learn the values and benefits obtained from good forest practices.

Landowners who are mainly interested in stock raising and not in producing timber, turpentine, or other forest crops, often favor burning in the winter and spring to benefit grazing. But they should confine their burning to their own lands and prevent fire from spreading into other areas. Some stockmen, however, who do not own sufficient land for grazing, commonly turn out their stock on the lands of others and in order to "green up the woods" start fires which they make no effort to control. From the public's view, such careless and inconsiderate burning should be completely stopped. One has no more right to burn the seedlings and trees of another than to burn down his neighbor's barn.

DO WOODS FIRES KILL SNAKES AND INSECTS?

Many young stands of trees have been killed by fires that were set to get rid of snakes. Such fires may do much damage to woods, while snakes seem to find ample protection in their holes and have a way of coming back in the usual numbers from year to year. Where all low vegetation is removed, snakes are more easily seen, but the usual tendency is to exaggerate both their numbers and the claims as to the effectiveness of fire as a means of killing them off. Whereas a few snakes may be burned and "varmints" run out temporarily, broadcast burning may be very costly in forest growth (fig. 8).

Fire has been used since the earliest settlements of this country in attempts to get rid of pests which torment man and beast. Genera-



F 224609

FIGURE 8.—Profits are made by protecting the woods. Left, a protected area has an average of 1,800 longleaf pine trees per acre. Right, land burned annually for 20 years contains an average of 136 trees per acre.

tions of woods burning have failed, however, to destroy such common insects as ticks or the annoying redbug. Woods fires did not eradicate the cattle fever ticks in the South. The rapid progress toward their eradication was accomplished by the systematic dipping of ticky cattle.

The United States Department of Agriculture has been working on screwworm control in the Southern States for many years. It has recommended various practices such as burying or burning the carcass of the animal infested by worms; yet occasionally someone burns the woods with the mistaken idea that the screwworm pest can be eliminated in this way. Burning the woods for this purpose, however, is not advised by the Department of Agriculture.

WILL BURNING THE WOODS KILL OFF THE BOLL WEEVIL?

Important among the pests that attack farm crops in the South is the boll weevil, which may destroy or cause serious damage to the cotton crop. In order to get rid of this pest farmers sometimes burn the woods, but investigations show that such burning is one of the most expensive and least effective methods of protecting the cotton crop.

Entomologists who have studied the life habits of boll weevils have learned that these insects often winter in places where they cannot be killed by burning. Weeds and grass around barns, gins, and outhouses afford ideal winter quarters for boll weevils, as do also haystacks and clumps of grass and weeds along ditch banks and



F. 256513

FIGURE 9.—Firebreaks are necessary in large forest areas and are excellent protection against bad fires on smaller tracts. This firebreak in Alabama was constructed by plowing furrows and burning the dry sedge grass between them.

roads and around fields. Some of the insects stay over winter in the edges of woods bordering cottonfields, but records show that the majority of the boll weevils are found within 50 feet of the edges of the cottonfield and seldom more than 300 feet inside the woods.

These facts show how wasteful it is to burn large areas of woods in the belief that weevils will be killed out. Such fires frequently get out of control, sweep through large wooded areas, but do not accomplish their purpose. The remedy is not worth the cost in damage to valuable timber and young trees.

Federal entomologists² have found that after a fire, enough weevils are left to start an infestation the following spring and, if weather

² F. F. Bondy and C. F. Rainwater, Pee Dee Experimental Station, Florence, S. C.

conditions during June and July are favorable for weevil development, the insects will increase so that dusting with calcium arsenate is necessary in order to protect the crop. Discussing control measures for boll weevils, the entomologists say:

It is wiser to encourage the growth of young timber and to systematically cut and sell this crop in order to purchase dusting machines and calcium arsenate than to destroy the timber by burning. The most important thing a farmer can do in the fall is to cut his cotton stalks as early as possible before frost so as to reduce the number of boll weevils that go into hibernation and survive the winter. *The early fall destruction of the cotton stalks is more effective as a boll weevil control measure than the dangerous practice of burning woods.*

WOODLAND FIRE HAZARDS CAN BE REDUCED

In localities where there are large areas of forest lands and bad fire conditions, farmers and other owners can cooperate in the application of fire-prevention measures that will assure adequate protection (fig. 9). As fires are a threat to the entire community, plans for neighborhood and individual farm protection may be discussed with the nearest State forest fire warden or, in his absence, with the county agricultural agent.

Some of the more important fire hazards, or bad fire conditions which make fire likely in farm woodlands, and the protective measures that can be taken to reduce the danger of forest fires are the following:

Woodland Fire Hazards

1. Long dry spells when the entire forest area with its litter may be as dry as powder.

2. Large timbered areas unbroken by clean roads, creeks, and open fields.

3. Heavy slash left on the ground after a logging job.

4. Stands of dead timber or groups of trees killed by fire or insects.

5. Idle land grown up with weeds, dry sedge, and other grasses.

6. Roadside slash and brush left by clearing.

Protective Measures

Neighboring farmers and communities should keep a constant watch for fires and help one another if fire starts. Keep out hunters and all others during such dry periods.

Make fire lines or breaks through and around the woods, and clean out all woods roads. Controlled burning may be advisable under some conditions, but as controlled burning is a technical job and dangerous, it should not be done without first discussing it with the forest fire warden. Every care must be taken to prevent excessive damage and escape of the fire to the lands of others. Talk over fire conditions with cattle grazers and others who use the woods and ask them to help in keeping out fire.

Log off limbs, pull heavy tops away from standing trees, or when desirable burn slash during a damp period under direction of a local forester. When harvesting trees cut low stumps to get more timber and to reduce fire danger.

Use recently killed timber and treat the tops and brush as in 3.

If the land can be used for crops or pasture, improve and use it; if it is low-grade land, plant to trees. Seedling trees can be purchased from the State forestry department.

Report to local or State highway officials or to representatives of the State forestry department. Take care that warning fires do not escape.

Woodland Fire Hazards**7. Heavy windfalls and snags.**

Use windfalls if timber has value; otherwise clean up fallen trees, scatter brush, and burn during a damp period. Cut all snags near firebreak or road as they may fall across the protection zone or cause sparks which may spread the fire.

8. Dead weeds, grass, and brush bordering fields and fence rows; sedge fields and new ground clearing (fig. 10).

Keep weeds cut, clean up brush and rubbish, and use the grass if possible. Sedge or brush burning should be done only during damp periods of low fire risk and after 5 o'clock in the evening, but no burning may be done in violation of coastal defense dim-out regulations. Clean up such fire hazards around the home, barn, and other buildings.

9. Waste materials and open fires around town and village dumps that border woodlands.

Report such conditions to the town or village officials and to local representatives of the State forestry department.

10. Trash, sawdust piles, abandoned buildings, etc., around mill sites.

If possible, reduce fire danger by cleaning up trash, plow fire lines around the mill site, and keep close watch for fires. If mill is operating, warn the workers of the danger of fires escaping into the woods.

11. Waste materials and other trash around camp and picnic grounds near forest areas.

Post fire-prevention and keep-clean signs. Visit areas frequently, make fire lines, and in bad dry spells, close the areas to visitors.

GENERAL RECOMMENDATIONS

1. For information on brush burning, fire-fighting methods, and details of constructing firebreaks and other protective measures, consult the local forest fire warden or the county agent, or write the State forester or the local U. S. Forest Service representative.

2. Post forest fire prevention signs on the farm and in the community. Such signs can be obtained at the office of the local forester or county agent.

3. Organize a volunteer forest fire group in the community to aid in preventing and fighting fires such as that of the Forest Fire Fighters Service under the Office of Civilian Defense. Fires injure everyone and everyone should help to stop them.

4. Get acquainted with the local forest fire warden and ask for his help with fire problems. The warden knows the State forest fire laws and is familiar with wartime plans for the protection of woodlands.



POINTERS IN FIGHTING FIRES

To prevent and control forest fires in a farming community, keep a careful watch for fire or smoke, get to the fire quickly, and stop it before it covers much ground. Neighbors can help each other by watching for fires in woods not easily seen by the owners. School children, timber haulers, rural mail carriers, salesmen, and others using the highways can be of a real service to the community when they see a fire if they notify the nearest farmer. Oftentimes a fire just getting started can be stopped on the spot. Remember that the easiest way to control fire is to discover it quickly and fight it out while it is still small.



F 419851

FIGURE 10.—Before burning his brush piles, this North Carolina farmer rakes a fire line to protect the adjacent woods, clearing away all grass and litter down to mineral soil. Then, with his helper stationed at the edge of the woods to watch for spot fires which might be started by flying cinders, he proceeds to burn his brush piles, one or two at a time.

Other pointers in fighting fires are:

1. Be alert during all dry spells and fire seasons.
2. Try to locate the fire accurately, and if it is large notify the fire warden in your area by telephone. If you have no warden call neighbors for help and go immediately to the fire. If the fire is on a neighbor's land notify him immediately.
3. Be prepared—have handy an ax, hoe, fire rake, long-handled shovel, fire swatter, and drinking water. A team of mules and a plow may be helpful in making fire lines.

4. Size up the fire and plan the attack so as to use your help to best advantage in fighting the fire (fig. 11).
5. When possible fight the fire at its head (the place where it is burning hardest and fastest).
 - a. Pinch off the head of a fire or fight it directly if it is not burning too hard (fig. 12).
 - b. Beat out fire or make fire line along sides and rear.
 - c. Take advantage of woods roads, trails, firebreaks, etc.
 - d. Watch fire line, snags, roots, etc., closely, to keep the fire from breaking over.
 - e. Be sure the fire is dead out before leaving it.



F 346414

FIGURE 11.—A crew raking a fire line around a small fire in Alabama.

6. Backfire to bring fire under control.
 - a. Use this method only when fire is too large and moving too rapidly to fight directly. Carefully plan the backfiring and keep it to the smallest possible area to avoid unnecessary damage and to prevent fire from burning the property of neighbors.
 - b. Use roads, firebreaks, and natural barriers from which to backfire.
 - c. Make sure the backfiring line is free of trash and wide enough to keep the backfire from crossing it; proceed slowly and with caution.
 - d. Keep a sharp eye on the backfiring line so that if the fire crosses the line it can be quickly whipped out.

7. Patrol the fire lines until all flames and sparks are out.
8. Try to determine who or what started the fire.
9. Estimate the acreage covered by the fire and the damage done to merchantable timber and young growth.
10. Report the facts about the fire to your local fire warden.



F 419856

FIGURE 12.—Farmers cooperating in stopping a small fire along the edge of a stand of young pine timber. Rakes and pine tops can be used in fighting fire, and other fire tools found on most farms include an ax, long-handled shovel, a saw, and a container for drinking water.

THE STATE FOREST FIRE ORGANIZATION

All of the Southern States have State forestry departments working to protect the woodlands from fire. The Federal Government, as well as private owners individually and in groups, give the State foresters financial and other help in this work. Although the several



Southern States differ somewhat in their systems of forest protection, they all have the same purposes: First, to prevent fires from starting; and second, to stop fires with the least possible damage done, in the shortest time and at the lowest cost.

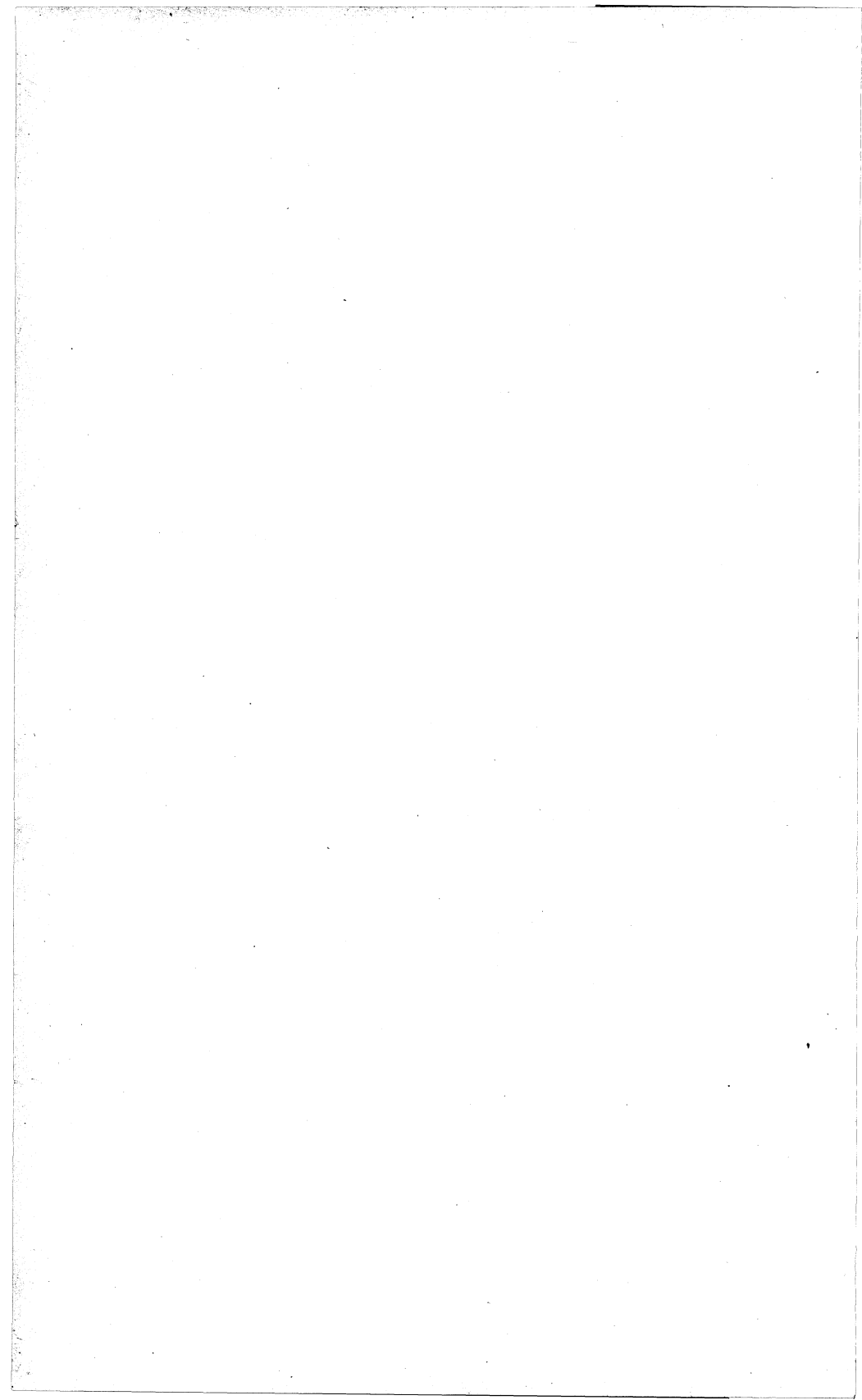
Although steady progress has been made in the South since forest protection was started (in most States less than 15 years ago), in several States there is still more land unprotected than is protected.



F 419866

FIGURE 13.—The rewards of forest fire protection. This young stand of slash pine in Wayne County, Ga., has come in after only 3 years of county-wide protection.

The beginnings of a good forest protection organization can be found in every State but more volunteer cooperation of local residents is needed at this time. Individuals can help by giving their support to the State organization, and community groups are urged to interest themselves in forest-fire control. Woods fires waste time, money, and material needed for victory in war or peace (fig. 13).



*For information on forest fire protection consult your local fire warden
or county agricultural agent or write to your extension forester
at the State college of agriculture, your State forester at the
State capitol, or the United States Department of
Agriculture, Forest Service, Washington, D. C.*

